



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,559	07/11/2003	Frank van Diggelen	GLBL/027	4310

7590 04/21/2005

Moser, Patterson & Sheridan, LLP
Attorneys At Law
Suite 100
595 Shrewsbury Avenue
Shrewsbury, NJ 07702

EXAMINER

BEHNCKE, CHRISTINE M

ART UNIT	PAPER NUMBER
----------	--------------

3661

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/617,559

Applicant(s)

DIGGELEN, FRANK VAN

Examiner

Christine M. Behncke

Art Unit

3661

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-15, 19, 21, 22 and 24-29 is/are rejected.
- 7) ☒ Claim(s) 6-8, 16-18, 20 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/31/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: NonPatent literature.

DETAILED ACTION

1. This office action is in response to the application filed 11 July 2003, in which claims 1-29 were presented for examination.

Specification

2. The disclosure is objected to because of the following informalities:

[0029], line 7 "server 206" should be changed to --server 116--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 11-14, 21, 26, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Martikka, US Patent No. 6,650,282.

4. (**Claims 1 and 26**) Martikka discloses a method and apparatus of locating position of a satellite signal receiver, comprising: a satellite signal receiver for receiving a plurality of satellite signals (Figure 2, Column 2, lines 28-44); and a microcontroller (Column 6, lines 30-38 a processor or controller is inherent) for determining a Doppler

offset for each of a plurality of satellite signals relative to the satellite signal receiver at a first time (Column 2, lines 12-19); and computing a position of the satellite signal receiver using the Doppler offset for each of the plurality of satellite signals (Column 2, lines 12-19 and lines 34-41).

5. **(Claim 2)** Martikka discloses wherein the position is a first fix of position for the satellite signal receiver (Column 2, lines 12-27 and line 65-Column 3, line 8).

6. **(Claim 3)** Martikka discloses further wherein each of the plurality of satellite signals is associated with a predefined reference frequency (Column 1, lines 18-20 and Column 5, lines 26-29).

7. **(Claim 5)** Martikka discloses further wherein the computing step comprises: estimating an initial position of the satellite signal receiver (Column 2, lines 34-41); forming Doppler residuals using the initial position and the Doppler offset for each of the plurality of satellite signals (Column 2, lines 34-48 and 58-64); relating the Doppler residuals to a change in the initial position (Column 2, lines 58-64 and Figure 1); and computing an update of the initial position (Figure 5).

8. **(Claims 11 and 27)** Martikka discloses a method and apparatus of locating position of a satellite signal receiver, comprising: a satellite signal receiver for receiving satellite signals (Figure 2, Column 2, lines 28-44); a microcontroller (Column 6, lines 30-38 a processor or controller is inherent) for determining at least one pseudorange between the satellite signal receiver and a respective at least one satellite (pseudo-distance, Column 2, lines 12-27); determining at least one Doppler offset for a respective at least one satellite signal relative to the satellite signal receiver (Doppler

Art Unit: 3661

shift, Column 2, lines 12-19 and 50-56); and computing a position of the satellite signal receiver using the at least one pseudorange and the at least one Doppler offset (Column 2, lines 12-27 and 50-56).

9. **(Claim 12)** Martikka discloses further wherein the at least one satellite signal is respectively transmitted by the at least one satellite (Column 5, lines 26-29).

10. **(Claim 13)** Martikka discloses further wherein that at least one satellite signal is transmitted by a respective at least one additional satellite (Column 5, lines 26-29 and Column 3, lines 34-38).

11. **(Claim 14)** Martikka discloses further wherein the position is a two-dimensional position comprising x and y coordinates in a horizontal plane (Column 1, lines 28-34).

12. **(Claim 21)** Martikka discloses further wherein the position is a first fix of position for the satellite signal receiver (Column 2, lines 12-27 and line 65-Column 3, line 8).

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 10, 11, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Chenebault et al., US Patent No. 6,181,275.

14. **(Claim 1)** Chenebault et al. discloses a method of locating position of a satellite signal receiver, comprising: determining a Doppler offset for each of a plurality of

satellite signals relative to the satellite signal receiver at a first time (Column 3, lines 3-16); and computing a position of the satellite signal receiver using the Doppler offset for each of the plurality of satellite signals (Column 3, lines 3-16).

15. **(Claim 2)** Chenebault et al. discloses further wherein the position is a first fix of position for the satellite signal receiver (Column 2, lines 49-51).

16. **(Claim 10)** Chenebault et al. discloses further computing velocity of the satellite signal receiver using the Doppler offset for each of the plurality of satellite signals (Column 3, lines 3-20).

17. **(Claim 11)** Chenebault et al. discloses a method of locating position of a satellite signal receiver, comprising: determining at least one pseudorange between the satellite signal receiver and a respective at least one satellite (pseudo-distance, Column 3, lines 3-7); determining at least one Doppler offset for a respective at least one satellite signal relative to the satellite signal receiver (Doppler shift, Column 3, lines 13-16); and computing a position of the satellite signal receiver using the at least one pseudorange and the at least one Doppler offset (Column 3, lines 3-16).

18. **(Claim 24)** Chenebault et al. discloses further computing velocity of the satellite signal receiver using the at least one Doppler offset and the at least one pseudorange (Column 3, lines 3-20).

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3661

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over
Chenebault et al. in view of Krasner, US Patent Application Publication 2004/0203865.

20. Chenebault et al. discloses the method of locating the position of a satellite receiver and further discloses wherein the plurality of satellite signals could comprise a global positioning system (GPS) signal or a Glonass system signal (Column 1, lines 17-21). Chenebault et al. does not disclose that the satellite signal could be a Galileo system signal. However, Krasner teaches that it would be obvious to adapt the previous methods to the European Galileo system signal ([0116]). It would have been obvious at the time of the invention to one of ordinary skill in the art to combine the method of Chenebault et al. with the teachings of Krasner because for the most part all circuitry and algorithms would remain the same in the different systems while broadening the consumer market.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chenebault et al. in view of Krasner, US Patent Application Publication No. 2004/0203865.

22. Chenebault et al. discloses the methods previously discussed in claims 1 and 11, but does not disclose computing a frequency error. However, Krasner teaches computing a frequency error associated with an oscillator of the satellite signal receiver using the at least one Doppler offset and the at least one pseudorange ([0056]-[0058]). Krasner teaches the frequency error can be calculated using the known position of the base station and the velocity, which Chenebault et al. teaches can be found using the pseudorange.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the methods of Chenebault et al. with the teachings of Krasner because the calculation of the frequency error of the oscillator can be compensated for and used to increase the accuracy of the signal receiver position calculation.

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martikka in view of Sheynblat et al., US Patent No. 6,597,311.

24. **(Claim 15)** Martikka discloses the method of claim 11 and further estimating an initial position of the satellite signal receiver (Column 2, lines 34-41); forming Doppler residuals using the initial position and the at least one Doppler offset (Column 2, lines 34-48 and 58-64); relating the Doppler residual to a change in the initial position and computing an update of the initial position (Column 2, lines 58-64 and Figures 1 and 5). Martikka does not disclose forming pseudorange residuals. However, Sheynblat et al. teaches forming pseudorange residuals using an initial position and an at least one pseudorange (Column 5, lines 30-51) and relating the pseudorange residuals to a change in the initial position (Column 6, lines 1-11).

25. **(Claim 19)** Sheynblat et al. further teaches wherein the at least one pseudorange is a sub-millisecond pseudorange (Column 6, lines 1-11).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Martikka with the teachings of Sheynblat et al. because as Sheynblat et al. suggests the determination of the pseudorange and time errors between the predicted and measured Doppler shifts and pseudoranges to correct the internal clock bias estimate, therefore increasing the accuracy of the signal receiver position calculation.

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 3661

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable Hirata et al., US Patent Application Publication No. 2002/0093452, in view of Djuknic et al., "Geolocation and Assisted GPS" IEEE, Feb 2001 pages 123-125.

27. **(Claim 25)** Hirata et al. discloses a method of locating position of a satellite signal receiver, comprising: determining a Doppler offset for each of a plurality of satellite signals relative to the satellite signal receiver at a first time ([0090]). Hirata et al. further teaches that the signal receiver transmits the pseudo range to an external apparatus but does not explicitly disclose that the Doppler information is transmitted to the external apparatus. However, Djuknic et al. teaches a server assisting a mobile handset by predicting the Doppler shift and other signal parameters and transmitting those predicted parameters to the handset. The handset then may search for the actual Doppler shift of the seen satellites and transmits, upon the request of the server, the specific measurements of the Doppler offset for each of the plurality of satellite signals to the server for computing a position of the satellite signal receiver (page 124, Column 3, lines 3-32).

28. **(Claims 28 and 29)** Hirata et al. discloses a system for locating position, comprising: a mobile device having a satellite signal receiver (terminal 4 and receiving antenna 6), a microcontroller (CPUs 26, 27, and 28), and a wireless transceiver (antenna 9 mounted on a radio unit for wireless exchange with an external apparatus); a server in wireless communication with the mobile device (central server/external apparatus 2); where the satellite signal receiver receives a plurality of satellite signals

[[0089]]; where the microcontroller determines at least one pseudorange between the satellite signal receiver and at least one satellite ([0014]) and determines at least one Doppler offset for at least one satellite signal of the satellite signals relative to the satellite signal receiver ([0090]); and where the wireless transceiver transmits the at least one pseudorange to the server for computing a position of the mobile device ([0015]). Hirata et al. does not explicitly disclose that the Doppler information is transmitted to the external apparatus. However, Djuknic et al. teaches a server assisting a mobile handset by predicting the Doppler shift and other signal parameters and transmitting those predicted parameters to the handset. The handset then may search for the actual Doppler shift of the seen satellites and transmits, upon the request of the server, the specific measurements of the Doppler offset for each of the plurality of satellite signals to the server for computing a position of the satellite signal receiver (page 124, Column 3, lines 3-32).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Hirata et al. with the teachings of Djuknic et al. because transmitting the predicted values of the signal parameters to the signal receiver reduces the amount of time and power spent searching for the satellite information, and the transmission of the actual measured Doppler shift and pseudo-ranges back to the server increases the accuracy of the receiver location being calculated by the server.

Allowable Subject Matter

Art Unit: 3661

29. **Claims 6-8, 16-18, 20 and 23** are objected to as being dependent upon a rejected base claim and are **at present** considered to overcome the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

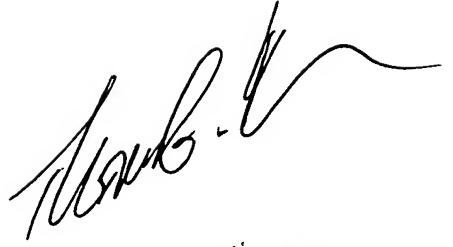
Conclusion

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine M. Behncke whose telephone number is (571) 272-8103. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

04-12-2005


THOMAS G. SLACK
SUPERVISORY PATENT EXAMINER
GROUP 3001